

Chapter 9 Plate Tectonics

Section 9.4 Mechanisms of Plate Motions


This section explains what causes plate motion and the role played by unequal distribution of heat within Earth.


Reading Strategy

Identifying Main Ideas As you read, write the main ideas for each topic. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.


| Topic | Main Idea |
|-------------------|-----------|
| Slab-pull | a. |
| Ridge-push | b. |
| Mantle convection | c. |

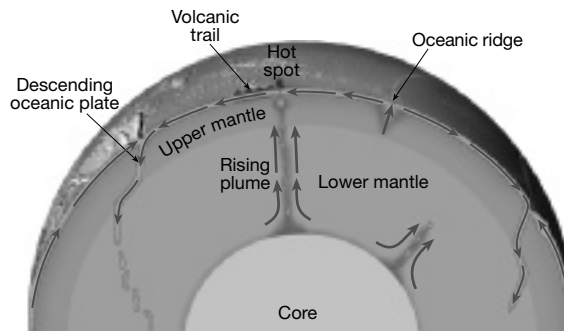
What Causes Plate Motions?


-  Circle the letter of the basic force that drives plate tectonics.
 - Earth's magnetic field
 - convection in the mantle
 - tidal influence of the moon
 - radiation from the sun
- What happens to the material involved during convection?

- A _____ is the continuous flow that occurs in a heated fluid because of differences of temperature and density.
-  The mechanism called _____ causes oceanic lithosphere to slide down the sides of the oceanic ridge.

Chapter 9 Plate Tectonics

5.  The mechanism that is the main downward component of mantle convection is _____.
6. Is the following sentence true or false? The upward flow of material in mantle convection consists of mantle plumes of rising hot rock. _____
7. The feature in the diagram where rock is coolest and most dense is the
 - a. lower mantle
 - b. descending oceanic plate
 - c. rising plume
 - d. oceanic ridge



8. Circle the letter of the statement that best describes the whole-mantle convection model.
 - a. Rock magnetism changes as rock layers melt under heat and pressure.
 - b. Hot oceanic lithosphere descends into the mantle, and cold mantle plumes move heat toward the surface.
 - c. Hot mantle plumes move heat toward the surface.
 - d. Convection in Earth's molten outer core transfers heat directly to the lithosphere.
9.  What causes thermal convection in the mantle?

Chapter 9 Plate Tectonics

WordWise

Complete the sentences by using one of the scrambled vocabulary terms below.

gentverdi dariensbou
nagapae
chtrne
ngameopalstmie
tnegrevcon seiradnoub

nouiusbdcet eozns
entlanitcno itfrd
cinocae esrigd
letasp

Destructive plate margins called _____ are where one oceanic plate is forced down into the mantle beneath a second plate.

Where two plates move together, _____ occur.

Wegener proposed that in the past, the continents were joined to form a supercontinent he named _____.

_____ occur where two tectonic plates move away from each other.

An ocean _____ is a surface feature produced by a descending plate.

Wegener's _____ hypothesis proposed that the continents changed position on Earth's surface.

A record of _____ is preserved in the sequence of rock strips at oceanic ridges.

Earth's lithosphere is divided into _____ that move and change shape.

Elevated areas of the seafloor called _____ occur along well-developed divergent plate boundaries.